DOCUMENT RESUME

ED 291 784 TM 011 069

AUTHOR Halpin, Gerald; And Others
TITLE Effects on Stanford Achievement Test Scores of Teaching Content Versus Test-Taking Strategies.
PUB DATE Nov 87
NOTE 13p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Mobile, AL, November 10-13, 1987).
PUB TYPE Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Grade 1; Primary Education; *Standardized Tests; *Test Coaching; Test Wiseness
IDENTIFIERS *Otis Lennon School Ability Test; *Stanford Achievement Tests

ABSTRACT

A study involving 18 boys and 20 girls attending Grade 1 in a rural elementary school was conducted to determine if a program designed to develop test-taking skills would result in higher standardized achievement test scores than would one focusing on the content assessed by the test. Each student was assigned to one of two groups and administered the Otis-Lennon School Ability Test. Students in one group focused on test-taking techniques, while students in the other group received an intensive review of objectives and content measured by the Stanford Achievement Test. Each group participated in the experimental activities for 50 minutes per day for 20 days prior to administration of the Stanford Achievement Test. Multivariate analysis of variance were computed on data from study instruments, and univariate analysis was performed on data from the Stanford Achievement Test. Results indicate that instructing students in test-taking strategies is as effective as is intensive instruction in content. A replication of this study with a larger mixed-race population would be beneficial. (TJH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED291784

Effects on Stanford Achievement Test Scores of Teaching Content Versus Test-Taking Strategies

Gerald Halpin
Auburn University

Nancy Smith
Gaylesville School

Glennelle Halpin
Auburn University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Gerald Halpin
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TM011 069

Paper presented at the meeting of the Mid-South Educational Research Association, Mobile, November 1987.

Effects on Stanford Achievement Test Scores of Teaching Content Versus Test-Taking Strategies

Programs designed to improve test-taking skills have been shown to be effective in improving students' scores on standardized tests of ability (cf. Messick & Jungeblut, 1981; Slack & Porter, 1980). Although no empirical support was provided, Vernon (1954) suggested that the effects of such programs would be as great on achievement tests as on ability tests.

Analyzing 40 studies of ability and/or achievement, Kulik, Kulik, and Bangert (1984) concluded that practice trials with parallel test forms would result in significant score increases. Bangert-Drowns, Kulik, and Kulik (1983) did a meta analysis of studies of the effects of coaching on achievement test results only. They found that small gains resulted from short test-taking orientations, larger gains came from drill and practice over a longer period of time, and even larger gains resulted in lengthy programs designed to improve cognitive functioning.

In a more recent study, Deaton, Halpin, and Alford (1987) studied the effects of a program designed to improve scores on the California Achievement Tests in the elementary grades. Instruction was provided in content areas covered by the achievement tests. In addition, test-taking skills and strategies were taught. Even though the program did result in significant gains on some of the California subtest scores, these increases were not consistent.

The purpose of this study was to determine if a program designed to develop test-taking skills would result in higher standardized achievement

test scores than would one focusing on the content assessed by the test. The specific research question was: Is there a significant difference between reading, listening/language, and mathematics subtest scores on the Stanford Achievement Test of first-grade students taught test-taking strategies and those taught content measured by the Stanford?

Method

Subjects

Subjects were 38 first-grade children in a rural elementary school in the South. These subjects were randomly assigned to two groups. In Group 1 there were 10 boys and 8 girls. In Group 2 there were 8 boys and 12 girls. The mean on the Otis-Lennon School Ability Test for Group 1 was 93.35 with a standard deviation of 11.52. The mean for Group 2 was 92.37 with a standard deviation of 15.65. These means were not significantly different, $t(34) = .22$, $p > .05$.

Procedure

The experimental treatment for Group 1 consisted of an intensive review of objectives/content measured by the Stanford Achievement Test. The experimental treatment for Group 2 focused on test-taking techniques. Each group participated in the experimental activities for 50 minutes per day for 20 days preceding the administration of the Stanford Achievement Test.

Objectives and content for Group 1 for each respective day were:

Recognize within words the structural elements required for decoding.

Day 1--compound words

Day 2--contractions

Day 3--inflectional endings

Demonstrate the ability to identify the consonant sounds represented by one or more spellings.

Day 4--single consonants, consonant clusters, consonant digraphs

Demonstrate the ability to relate vowel sounds to their most common spellings.

Day 5--short vowel sounds, long vowel sounds, other vowel sounds

Demonstrate an understanding of the system of whole numbers by counting and recognizing names for numbers.

Day 6--counting, recognizing names for numbers

Demonstrate an understanding of place value by reading and interpreting numerals and by comparing and ordering numbers.

Day 7--review names of numbers, read numerals, interpret numerals

Day 8--compare and order numbers

Demonstrate an understanding of fractional parts.

Day 9--fractions

Demonstrate an understanding of the fundamental operations and their properties.

Day 10--operations, properties

Add whole numbers with no renaming.

Day 11--addition facts; three one-digit addends; addition, no renaming

Subtract whole numbers with no renaming.

Day 12--subtraction facts; subtraction, no renaming

Solve problems and express problems as number sentences.

Day 13--solve problems, solution sentences

Demonstrate an understanding of the principles of geometry and measurement.

Day 14--geometry

Day 15--measurement

Demonstrate the ability to recognize the correct spelling of dictated sight words.

Day 16--sight words/spelling

Day 17--sight words/spelling

Demonstrate the ability to apply phonetic principles in order to recognize the correct spelling of phonemes within words.

Day 18--consonant sounds

Day 19--vowel sounds

Demonstrate the ability to identify the correct spelling of words in which inflectional endings have been formed in accordance with structural principles.

Day 20--words with inflectional endings

Materials used were charts, flash cards, plastic models, worksheets, chalkboard, chalk, and pencils.

Contents of the daily lesson plans for Group 2 were:

Day 1--general test directions, explanation of testing symbols, practice marking correct answers

Day 2--practice sight-word test, practice reading comprehension test, discussion of all answers

Teaching emphasis: marking every bubble on the answer sheet

Day 3--practice reading comprehension test

Teaching emphasis: finding correct answers on reading comprehension test

Day 4--practice reading comprehension test

Teaching emphasis: using pictures for clues to correct answers

Day 5--practice picking out compound words, contractions, and certain suffixes

Teaching emphasis: using helpful hints no matter what the word

Day 6--practice word-study test

Teaching emphasis: reducing test anxiety

Day 7--practice word-study test, practice spelling test

Teaching emphasis: looking for familiar words

Day 8--practice spelling test

Teaching emphasis: encouraging completion of all questions

Day 9--practice listening comprehension test

Teaching emphasis: listening rather than "just marking"

Day 10--practice listening comprehension test

Day 11--practice math concepts tests

Teaching emphasis: counting bundles of 10s by 10 and not 1, listening carefully in order to mark correct place value

Day 12--practice math concepts tests

Teaching emphasis: counting objects that represent 10s by 10 and not 1

Day 13--practice math concepts and math computation tests

Teaching emphasis: using scratch paper in computations

Day 14--practice math computation tests

Teaching emphasis: using quick tricks in computation, using scratch paper

Day 15--practice math computation and application tests

Teaching emphasis: using picture clues to choose correct matching numbers

Day 16--practice math computation and application tests

Day 17--practice community and science tests

Day 18--practice community and science tests

Day 19--practice listening skills tests

Teaching emphasis: listening carefully to remember

Day 20--practice listening skills tests

Soaring High with Test-Taking Tactics (Sparkman & Sparks, 1985) was the major source of materials used with Group 2. Pencils, scratch paper, test sheets, and a stop watch were also needed.

The week following completion of the experimental treatment, both groups were given the Stanford Achievement Test and Otis-Lennon School Ability Test as a part of the statewide testing program. Reported for the Stanford Achievement Test and analyzed in this study were normal curve equivalent scores on word study skills, word reading, reading comprehension, vocabulary, listening comprehension, spelling, concepts of number, and math computation and application. A school ability index was reported for the Otis-Lennon.

Multivariate analyses of variance were computed with the independent variable being treatment group and the dependent variables being the normal curve equivalent scores from the Stanford on (a) word study skills, word reading, and reading comprehension; (b) vocabulary, listening comprehension, and spelling; and (c) concepts of number and math computation and application. Because of the limited number of subjects and the fact that the MANOVA lacked statistical power even at the .10 level, univariate analyses of variance were computed to reduce the probability of a Type II error.

Results

None of the multivariate analyses yielded significant results. The test of Wilks' lambda (.93) in the analysis of word study skills, word reading, and reading comprehension resulted in an $F(3, 31) = .77$, $p = .52$. In the analysis of vocabulary, listening comprehension, and spelling, the test of Wilks' lambda (.96) yielded an $F(3, 32) = .42$, $p = .74$. The test of Wilks' lambda in the analysis of concepts of number and math computation and application gave an $F(2, 33) = .21$, $p = .82$.

Results of the univariate analyses of variance by group for scores on each subtest of the Stanford Achievement Test are reported in Table 1. Means and standard deviations are given in Table 2.

Insert Tables 1 and 2 about here

As can be seen in Table 1, none of the F ratios from the univariate analyses were significant. Means for Groups 1 and 2 were not significantly different on any of the Stanford subtests.

Discussion

Results from this study seem to indicate that instructing students in test-taking strategies is as effective as intensive instruction in content. These results are somewhat inconsistent with the findings of Bangert-Drowns et al. (1983) who suggested that greater gains would result from programs designed to improve broad cognitive skills as opposed to programs in which a test-taking orientation or drill and practice on sample test items were provided. It should be noted, however, that time was a variable in the Bangert-Drowns et al. report with the cognitive skills approach being longer than the orientation or the drill and practice programs.

In the Bangert-Drowns et al. study, cognitive skills programs of approximately 20 hours in length resulted in the largest gains in standardized achievement test results. Treatment in the present study was 20 hours in length, and, based on the Bangert-Drowns et al. findings, it might have been hypothesized that the teaching of content and objectives would have made a difference in achievement on the Stanford. Such an outcome was possible in this study. It may be that the content-teaching intervention resulted in significant achievement test score gains. It may also be true that the teaching of test-taking strategies resulted in significant increases on the Stanford scores. Comparing test scores

of students who had been taught test content with those who had been taught test-taking strategies would not have resulted in significant group differences should such possibilities have been true.

Results from the Deaton, Halpin, and Alford (1987) study would not support these possibilities, however. In their study, they compared the effects of the teaching of content and test-taking strategies in combination as opposed to no special intervention and found no coaching effects. The intervention in their study was only approximately 8 hours, though, instead of 20 hours as was the case in the present study.

Deaton, Halpin, and Alford did suggest that areas of achievement being measured might be a variable affecting the significance of the effects of coaching. They found different effects for the reading versus the mathematics versus the language areas. However, in this study no differential effects were found in the different achievement areas.

As suggested by Deaton, Halpin, and Alford, student characteristics such as race and sex might be variables influencing the effects of intervention on achievement test scores. Due to the limited sample in this study, such a possibility could not be investigated.

Needed seems to be additional research. A replication of this study with a large number of black and white boys and girls should provide more definitive results, especially if treatment group scores are compared with those of a control group receiving no content-based or test-taking interventions.

References

Bangert-Drowns, R. L., Kulik, J. A., & Kulik, C. C. (1983). Effects of coaching programs on achievement test performance. Review of Educational Research, 53, 571-585.

Deaton, W. L., Halpin, G., & Alford, T. (1987). Coaching effects on California Achievement Test scores in elementary grades. Journal of Educational Research, 80, 149-155.

Kulik, J. A., Kulik, C. C., & Bangert, R. L. (1984). Effects of practice on aptitude and achievement test scores. American Educational Research Journal, 21, 435-447.

Messick, S., & Jungeblut, A. (1981). Time and method in coaching for the SAT. Psychological Bulletin, 89, 191-216.

Slack, W. V., & Porter, D. (1980). The Scholastic Aptitude Test: A critical appraisal. Harvard Educational Review, 50, 154-175.

Sparkman, B., & Sparks, D. (1985). Soaring high with test-taking tactics. The Right Combination.

Vernon, P. E. (1954). Practice and coaching effects in intelligence tests. Educational Forum, 18, 269-280.

Table 1

Univariate Analyses of Variance for Scores of Treatment Groups on the Stanford Achievement Test

Variable	Hypothesis SS	Error SS	df	F
Word study skills	352.21	6730.86	1,33	1.73
Word reading	316.67	11535.63	1,33	.91
Reading comprehension	17.18	12002.89	1,33	.05
Vocabulary	209.28	12559.91	1,34	.57
Listening comprehension	341.63	8933.61	1,34	1.30
Spelling	11.33	8841.52	1,34	.04
Concept of number	78.62	10141.08	1,34	.26
Math computation/ application	.03	7990.50	1,34	00

Table 2

Means and Standard Deviations for Scores of Treatment Groups on the Stanford Achievement Test

Variable	Group 1		Group 2	
	M	SD	M	SD
Word study skills	75.65	16.25	69.30	12.15
Word reading	60.93	17.31	54.91	19.91
Reading comprehension	67.63	17.21	66.23	20.67
Vocabulary	67.60	20.11	62.78	18.29
Listening comprehension	70.32	15.37	64.16	17.01
Spelling	66.11	14.87	64.98	17.29
Concept of number	71.63	13.56	74.59	20.32
Math computation/ application	66.86	15.13	66.91	15.53